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Restricted and Unrestricted Fiscal Grants and Tax Effort of Panchayats in India

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Abstract

This paper examines the impact of restricted and unrestricted fiscal grants on tax effort of Panchayats using nationally-representative panel data on finances. We propose three pathways through which these impacts accrue: wages, profits, and incentives. In order to deal with the simultaneities of grants received and taxation, we estimate a system of equations simultaneously, where the first stage equations predict the grants. The results show that a wage impact on taxation exists, but is very small and, the productivity impact of grants on taxes is negligible. This means that incentives effects associated with the specifics of the intergovernmental fiscal system in the states is the main determinant of village taxation. Several policy conclusions are advanced.

Keywords: Devolution, Incentive Effects, Restricted and unrestricted grants, Panchayats and Local Government
JEL Codes: H71, H77

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"All of us pay our taxes regularly – even those who are accessing water from the community taps. I believe that there would be no resistance in case the Pani Panchayat deems it necessary to increase the taxes, as it would only add to the pool of resources that can be used later for addressing any pressing issues in the future"[i]- *Suresh Jadhav: a villager in Maharashtra attempting to link improved quality of governance with willingness to pay taxes.*

1. Introduction

Ever since of Musgrave (1959), a large literature has argued that provision costs of public goods will be minimized if public goods are paid for by a benefits tax (user fee). This fee will reflect the household's marginal utility from the public good. Furthermore, an elected local body (like the village Panchayat) is more likely to reflect local preferences and be able to effectively match the provision of public goods and services to such preferences. A local government will be more administratively responsible if at least part of its budget is financed by its own revenues, i.e., local taxation. This incentive is missing if the local government merely spends money handed down by a higher level (e.g. vertical transfers).

The paper's epigraph provides evidence that taxpayers are willing to pay local taxes provided the benefits are evident. This willingness also reveals improved governance[ii]. Yet fiscal (particularly revenue) devolution is lower in developing countries like India (where only 10% of Panchayat expenditure are financed by local revenue) than in developed countries (Gadenne and Singhal, 2014). Given this and the abovementioned importance of local tax collection, it becomes imperative to examine the impact of such transfers on local tax collection, an issue that has been relatively neglected in the literature.

This paper examines this issue at the level of Panchayats in rural India.[iii] Our analysis shows that the type of grants from higher level governments matters. It argues that at the margin, it is welfare enhancing to reduce employment generating grants and increase block grants.

Given that households consume both public and private goods, any increase in either the supply or the quality of public goods will have an added effect of increases in factor productivity (Faguet, 20014), and household welfare. Economic development resulting from greater financial devolution is a result of a change in the utility of a representative household due to expansion of the per capita budget constraint offered to the household. However, the structure of vertical transfers may impact the Panchayat's budget constraint and, hence, its ability to finance expenditures. [iv]

We show that crowding out or in, or neutrality of vertical transfers that are earmarked, will depend on what we term as wage, incentive and profit effects of such transfers. Grants for public works or employment generation programs (e.g. the Mahatma Gandhi National Rural Employment Guarantee Scheme, or MGNREGS) will increase employment, and therefore increase village wages, depress profits, and could impact tax revenue. This is the wage effect of transfers. Furthermore, expenditures from grants can directly affect profits through the effect that creation of public goods and services (such as availability of healthcare services, clean drinking water, and agricultural expertise) has on productivity, which we call the profit effects of transfers. Thus, grants for better roads can improve market access, and raise profits. Devolution of functions, the level of transfers, and autonomy over the use of transfers will provide positive or negative incentives to raise taxes, which we call the incentives effect of transfers. This has been explored in the context of specific states in India, such as Kerala (Rajaraman and Vasishtha, 2000), but not at the national level. Grants can either crowd out own revenue-raising or make it more attractive

in order to complement the transfers. For example, a transfer for education may crowd out revenues raised for local schools, or unrestricted block grants may provide incentives to utilize these funds efficiently, as the public expenditure pattern can now conform more closely to the preferences of the village community. We show that crowding out is caused by a combination of wage and incentive effects.

We further show that if local governments transfer either all or a portion of a received tied grant to a fungible pool, this will not affect the tax base. Such transfers have large impacts on taxes raised through wage, profit and incentive effects. We use Panchayat-level data from 241 villages from 17 states in India covering a period of 15 years (3 Panchayat elections). We categorize grants into block grants and restricted grants, and further differentiate the restricted grants into those that finance public works (and therefore have a wage impact), and those that are not expected to have a wage effect (such as grants for social welfare programs).

The plan is organized as follows: Section 2 provides the background on reforms to local finances in India. Section 3 presents a simple model of the impact of untied grants and an implied wage effect caused by labor augmenting tied grants on the economic welfare of households. Section 4 presents the data and section 5, we explains the econometrics used for testing the presence of wage, incentive and profit impact of various types of transfers. Section 6 concludes.

2. Literature and Background

2.1 Literature

The literature on the effects of vertical transfers to local governments is fairly extensive (see Ferreira et al., 2005 for a survey). Buettner and Wildasin (2006), Courchene (1994), Dahlby and Warren (2003),

Rajaraman and Vasishtha (2000), Snoddon (2003) and Zhuravskaya (2000) show that tied vertical transfers and even equalizing transfers will crowd out local tax efforts. Dahlberg et al. (2008) address the potential endogeneity of grants but do not find any conclusive evidence for either crowding-in or crowding-out effect of intergovernmental transfers on the local tax rate or on tax revenues. Mogues and Benin (2012) show for Ghana that even with the presence of incentives to collect taxes, the continued vertical transfers to local governments actually depresses own revenue generation.[v]

"Flypaper effect" of transfers lead to different conclusions (Van de Walle and Mu, 2007). Gamkhar and Shah (2007) show that increased local taxes could lead to efficient local spending. Similar results are found in Oates (2006), Blochlinger and Petzold (2009), Jin and Zhou (2001), Rodden and Wibbels (2009), Eyraud and Lusinyan (2011), Rodden (2002) and Fauget (2004). However, the flypaper basis for evaluating the effects of vertical transfers ignores elasticities, and the adverse effects of governance that could be shifted to households. The local governments could "tax" the households for accessing these grants.

In contrast, Skidmore (1999), McGuire (1975, 1978), Zampelli (1986), and Becker, (1996) argue that recipient local governments often view tied grants as being fungible. Recent African evidence has suggested that conditional grants could also play a complementary role in raising local revenues (Brun and El-Khdari, 2016; Sanogo and Brun, 2018). Hence, even tied grants could have a positive effect on local public goods. Thus, if incentives could be created for local governments to treat tied grants as fungible, then vertical transfers could lead to increased provision of public goods and even increased revenues through taxes. Experience with several community-driven development projects around the world has shown that communities are able to execute works of quality similar to the works implemented via contractors hired by sector agencies, but at a significantly lower cost (Binswanger et

al. 2009).[vi]

Empirical evidence on impacts of increased revenue buoyancy at the level of local government on economic development is inconclusive. Davoodi and Zou (1998) find a negative relationship between fiscal decentralization and growth possibly because if fiscal decentralization does not take into account local preferences it may increase expenditures on items that depress growth. Hindriks et al (2006) suggest that even equalizing grants (in a situation with revenue buoyancy) could distort provision of public goods if preferences of the recipients are ignored. Iimi (2005) suggests that one reason why empirical results are weak is because of the time periods used. During periods of relatively higher economic growth, the relationship between fiscal decentralization and economic growth could be actually pronounced. Baskaran and Feld (2013) conclude that fiscal decentralization is unrelated to local economic development while Buser (2010) shows that it increases income but at a decreasing rate indicating that the incentive effects wear out over time. Robalino et al (2001), show that fiscal decentralization has a significant positive impact on health outcomes such as reducing infant mortality. They point out the importance of fiscal decentralization is important when corruption is high. Kappelar et al (2013) show that fiscal decentralization improves investment in infrastructure by sub national governments and that fiscal decentralization achieved through tied grants is less effective than through fungible funds.

This literature has at least two lacunae. First, pathways through which vertical transfers crowd out local revenue generation are not clear. Second, the relationship between fungible grants and local economic development is not clarified.

2.2 Background

.[vii]

The 73rd constitutional amendment brought into effect several reforms relating to local governance, devolution of powers to Panchayats and Gram Sabhas (GS), political reservations for women, and sharing of revenues collected by the States with Panchayats[viii]. The Ministry of Panchayati Raj was set up in 2004 to enact and implement several policy initiatives and has since championed the cause of local self-governments in India. Recently a devolution index was created under the Panchayat Empowerment and Accountability Incentive Scheme (PEAIS) to monitor the status of devolution across states.[ix]

However, there has been incomplete implementation of reforms. In particular, very few studies examine the impact of fiscal devolution on tax buoyancy of Panchayats. The argument that low-level of revenue generation by Panchayats is due to high levels of poverty is contradicted by evidence that per capita bribes in rural India exceed per capita tax collected (Table 1).

Table 1 here.

3. The model

Consider a local government receiving transfers to fund an employment generation program that guarantees fixed wages to participants. The market wage will be influenced by the wage offered. Let $\varkappa$ be the tax base of the Panchayat, and *t*, the tax rate. Hence, the tax collected is $x = \varkappa t$.

Let $\rho(x)$ be the indirect cost of raising taxes whence the net tax collected is:

$$\varkappa = x - \rho(x).x \qquad (1)$$

Where, $0 \leq \rho \leq 1$ .The marginal cost of collecting tax is positive i.e. $\rho'(x) > 0$.

Local governments receive program (tied) and block (untied) grants. Program grants are typically fixed for a given Panchayat period, while block grants are received from higher-level governments, but are fungible and can be applied to a variety of programs at the village level.

The impacts of government transfers depend on the objectives behind such transfers, i.e. whether these transfers are employment or welfare generating. We define the employment generating transfers as g_1, transfers that generate social welfare as g_2, and fiscal transfers in the form of block grants as g_3. Following the fiscal equalization principle we write g_1 as

$$g_1 = g_1^0 - \lambda(x_{t-1}, x_t)x_t \quad (2)$$

$$\lambda, \lambda_{x_t}, \lambda_{x_{t-1}} \geq 0 \quad (2a)$$

Where, λ is the rate at which g_1 is adjusted to reflect changes in tax collected and g_1^0 is the magnitude of g_1 received if Panchayat collected zero taxes. Similarly, for g_2:

$$g_2 = g_2^0 - \theta(x_{t-1}, x_t)x_t \quad (3)$$

$$\theta, \theta_{x_t}, \theta_{x_{t-1}} \geq 0 \quad (3a)$$

All transfers to the *Panchayat* not raised locally are written as *g:*

$$g = g_1 + g_2 \quad (4)$$

Let the per capita budget constraint of the village government as well as that faced by the households be *z*:

$$z = (1 - \rho(x)).x + g_2 \quad (5)$$

Where, *z* is the revenue for public spending, $(1 - \rho(x)).x$ is the net tax (net of cost of raising an additional unit of tax) and g_2 are the non-employment generating transfers from outside Panchayat. Thus, we can formulate the change in budget constrained due to local tax effort as

$$z_x = \frac{d(x - \rho(x)).x + g_2}{dx} = 1 - \rho_x x - \rho(x) + g_{2_x} \quad (6)$$

The change in government transfers due to local tax effort is given by g_x where $g_x = g_{1_x} + g_{2_x}$. Now,

$$g_{1_x} = \frac{\partial(g_1^0 - \lambda x)}{\partial x} = g_{1_x}^0 - \lambda_x - \lambda \quad (7)$$

We can write the expression for g_{2_x} in a similar manner.

Consumption c of a representative household is determined by income from labor supply to private capital (denoted by k) and wages received from labor supply to government programs. Hence,

$$c = f(k, g_1) - kf_k - g_1 f_{g_1} \quad (8)$$

We assume that the production function f is Cobb-Douglas and is written as

$f = Ak^{\delta_1} g_1^{\delta_2}$, where $\delta_1 + \delta_2 < 1$ and $\delta_1, \delta_2 > 0$. It can then be shown that $kf_k = \delta_1 f$ and $g_1 f_{g_1} = \delta_2 f$. Hence, c = $(1 - \delta_1 - \delta_2)f$.

A representative household's utility u is written as

$$u = c + \alpha v(z), \quad (9)$$

where, $\alpha v(z)$ is the utility from public goods. The panchayat maximizes the utility of this representative household with respect to the tax collected x which yields as first order condition

$$u_x = c_x + \alpha v'(z) z_x = 0 \quad (10)$$

Equivalently, $\alpha v'(z) = -\frac{c_x}{z_x}$

Now, change in household consumption with respect to tax is

$$c_x = (1 - \delta_1 - \delta_2)\frac{df}{dx} = (1 - \delta_1 - \delta_2)(f_k k_x + g_{1_x} f_{g_1}) \quad (11)$$

From the impact of tax on the budget constraint in (6), we derive the first order condition for utility maximization from (10) and (11) as follows

$$\alpha v'(z) = \frac{(\delta_1 + \delta_2 - 1)(f_k k_x + g_{1_x} f_{g_1})}{1 - \rho_x x - \rho(x) + g_{2x}} \quad (12)$$

The Panchayat uses its tax policy to satisfy this optimality condition.

Remark 1: In order to reconcile (12) with our empirical specification, we assume that impact of raising local revenue on marginal utility of public goods can be aggregated to represent components of the

wage effect, incentive effect, and the profit effect.[x] To see this, assume that grants lead to construction of public utilities, thereby also impacting wages. This shifts the household budget constraint outward (due to x, ρ and g_2 increasing) as a new tax rate will be used to fund increased supply of public goods. In (12) the denominator on the RHS measures the response of public goods supply to an increase in tax collected. $(1 - \rho_x x - \rho(x))$ denotes the net increase in tax revenue from a marginal increase in the tax base. This consists of the additional indirect cost of the tax collected in response an increase in the tax base and additional grant (g_2). Hence, the denominator is the response of public goods supply to tax collected. We know that this term is positive. In the numerator, by diminishing returns, $\delta_1 + \delta_2 < 1$. Further, $f_k and f_{g_1}$ are positive because the marginal products of capital and employment generating grants are both positive. However, k_x and g_{1_x} are negative (the former because of the profit effect and the latter because of the wage effect). Hence, the numerator is also positive. The LHS is scaled-up marginal utility of the public good, which is positive. (12) states that the marginal utility of the public good should be equal to the impact of the higher tax needed to finance the public good (the numerator in the RHS of (12)), normalized by the impact of the additional tax on public goods supply (the denominator of the term on the RHS of (12)). Hence, at the margin, the marginal utility of the public good should equal the private output foregone to produce the public good. Essentially the cost or benefits of raising own taxes and the quantum of grants received from outside (which directly affect the decision to raise taxes locally) have household-level impacts. For example, intergovernmental (vertical) transfers will affect the productivity or the tax base of the local economy by having an adverse effect on the marginal utility of public goods derived by households.

Remark 2: We do not measure ρ directly as the cost of raising taxes; ρ is taken to represent three effects

of local tax efforts in the form of wage, profit, and incentive effects as consolidated in (12). Thus, ρ allows us to explore the underlying factors for the low-level of revenue generation.

Proposition

We exploit the monotonic relation between tax collected and public goods supply to argue that when public goods supply rises, (z goes up) tax collected must rise to finance the increased public goods supply. We know the first term in the numerator on the RHS of (12) is negative. f_{g_1} is positive whence (assuming g_{1_x} is negative) $\alpha v'(Z)$ will rise when g_1 goes up. This is possible only when z goes down, i.e., tax revenue falls. Further, from (12) (and under our assumptions) when ρ rises $\alpha v'(Z)$ will rise, i.e., z will fall. The marginal utility of the public good is not observable and hence not testable. However, (12) leads to an estimable equation for the relation between tax collected, g_1,and tax revenue.

4. Econometric specification

Estimating the wage, productivity, and profit effects

g is the vector of the fiscal transfers from higher levels consisting of g_1, and g_2 , which stand for the earmarked grants that finance public works and earmarked grants for social programs, and g_3 is the fiscal transfers through block grants.

Let π be the sum of farm and off-farm profits of the representative household, which represents the tax base including the returns to family labor. Let t stand for all the tax revenues raised by the Panchayat itself, exclusive of user charges, which are earmarked for a specific purpose. Each of these variables is normalized by population.

Let π_i be the net cost or benefit of transfer i in terms of the tax base (by its net impact on the agricultural wage as well as the compensating impact of the public goods financed on agricultural profits). We can

estimate the impact of these transfers across villages as:[xi]

$$\pi = \pi_0 + \pi_1 g_1 + \pi_2 g_2 + \pi_3 g_3 + \varepsilon_1 \quad (13)$$

The variables are constructed so that grants that lead to construction activities, i.e., wage rises, are included in g_1, while other grants are included in g_2. With only wage effects present, construction employment will increase, leading to an increase in wage represented by the coefficient π_1. This implies that π_1 should be negative, and should be larger in absolute value than π_2, i. e. $\pi_1 < \pi_2 < 0$. Expenditures of the Panchayat out of block grants produce public goods and services, including some possibility of impacting construction activities. This implies that for π_2 if there are only wage effects, the coefficients would be: $\pi_1 < \pi_2 < \pi_3 < 0$.

We next look at the pathway of the impact of public expenditures via wages, by estimating the wage equation:

$$w = \beta_0 + \beta_1 g_1 + \beta_2 g_2 + \beta_3 g_3 + \varepsilon_2 \quad (14)$$

Any labor demand effects of g_1 and g_3 would raise wages. If these are the only effects, we would expect the corresponding coefficients to be negative. However, productivity effects of public expenditures can have either positive or negative impacts on wages: if the productivity impact is neutral or labor using, and final demand for agricultural commodities is elastic, productivity gains will lead to higher labor demand, and therefore to higher wages. In this case, the labor demand effect coming from public works and that coming from productivity-enhancing expenditures work in the same direction. It is only in the case when productivity impacts of public expenditures are labor-saving that the two

might offset each other, leading to ambiguous signs on the coefficients.[xii]

The first order impact of a wage increase on profits, holding productivity constant, is the share of hired labor in total profits, i.e. $\frac{\delta\pi}{\delta w} = -\sigma$. Therefore, we can estimate the pure wage effect of the transfer on profits directly from (14) as

$$\nu_i = \frac{\delta\pi}{\delta g_i} | \text{profits} = -\sigma\beta_i \qquad (15)$$

Similarly, the first order impact of the change in the tax base on tax revenue is the share of Panchayat taxes in farm profits τ multiplied by the impact of grant *i* on profits which we can estimate from (13), i.e.

$$r_i = \frac{\delta t}{\delta g_i} = \tau\pi_i \qquad (16)$$

Suppose that the three expenditure types also finance public goods and services that increase agricultural productivity, and therefore profits, which means that π_i is composed of a wage impact $\nu_i < 0$ and a productivity impact $p_i > 0$. Substituting from (14) we find:

$$\pi_i = \nu_i + p_i = -\sigma\beta_i + p_i \qquad (17)$$

Which we can solve for the productivity effect of the grants $p_i = \pi_i + \sigma\beta_i$

The incentive effect

Let $\alpha = (\alpha_0, \alpha_1, \alpha_2, \alpha_3)$ be the vector of attributes of the intergovernmental fiscal system in a particular state, which are exogenous parameters to the village. $\alpha_0$includes general variables such as the proportion of devolved functions (out of 29 states) in a particular state; the proportion of the function

that require own revenues; and how well the transferred functions have been funded. The α_i are autonomy indices specific to each type of grant, and include the autonomy that the GS has over the expenditures corresponding to each of the g_i in terms of (i) planning the expenditures, (ii) the autonomy over allocation of funds, and (iii) execution of projects financed by the funds. For g_1 and g_2 the indices include separate data for each of the specific earmarked funding stream that is contained in them, while for g_3 the data was available for all unrestricted grants together.

We estimate the reduced form impact of the transfers and of fiscal systems attributes on own revenue as:

$$t = c_0 + c_1 g_1 + c_2 g_2 + c_3 g_3 + a_0 \alpha_0 + a_1 \alpha_1 + a_2 \alpha_2 + a_3 \alpha_3 + \varepsilon_3 \quad (18)$$

The c_i measure the impacts on taxes of the grants resources received, while the a_i coefficients measure the impact of the state fiscal systems parameters on taxes raised.

Endogeneity

The data used for profits, taxes, and transfers refer to the sample villages. In many cases, these villages belong to a larger Panchayat. How much of the restricted and block grants come to the village depends on the fiscal systems attributes of the state and central government. But astute Panchayat politicians will also be able to influence them, making them potentially endogenous to the Panchayat. Since the data are village-specific and not available at the Panchayat-level, the volume of resources flowing in to a specific village will also be influenced by the villages' own behavior. Additionally, the transfers are also affected by the reactions of higher-level decision makers to attributes of the fiscal system. For example, a state which transfers more functions may decide to transfer more block grants, or more grants with specific functions transferred to the Panchayats. We therefore predict the grants going to

the villages using variables that are related to the political behavior of the village, as well as to the attributes of the fiscal system, i.e. we estimate

$$g_{ik} = d_0 + d\boldsymbol{V} + s_0\alpha_0 + s_{ik}\alpha_{ik} + \varepsilon_i \quad (21)$$

Where, $\boldsymbol{V}$ is a vector of village specific variables, α_0 is the vector of general attributes of the fiscal system as before, while α_{ik} are grant-specific attributes for the k^{th} type of grant.

Identification strategy

In order to deal with the simultaneitiety of grants received and taxation, we estimate the system of equations via three stage least squares, where the grants are predicted in the first stage equations using the number of GS meetings in the village, the proportion of villagers that participate actively in GS meetings, per capita bribes paid, and the fiscal systems attributes as explanatory variables. One of the fiscal systems attributes is specific to the type of grants, and ensures that there is one instrument that is included in each first stage equation that is not included in the second stage equations.

For all the revenue and income variables we have data for 1999 and 2007, or for the closest years in Panchayat periods for which data was collected. In order to account for village-specific fixed effects, we can estimate the first difference of the equations between 2007 and 1999. However, the fiscal systems parameters are only available for the time around 2007. We know that these are changing very slowly in the states and are therefore use their level to explain the growth of the endogenous variables.

4. Data

We use data from the Rural Economic and Demographic Survey (REDS) conducted by the National Council for Applied Economic Research (NCAER). We use data for 1999 and 2006 with sample sizes of 7474 and 8659 with 5885 households repeated. We use villages that contain data on all aspects of governance including elections, GS meetings, government programs, taxation, expenditures, number of village level shocks, amongst other variables. The household questionnaire is the raw data from which village profits, participation in GS, and the proportion of households affected by village shocks is estimated.. Finally, a state level survey was used to collect the state level attributes of the fiscal system.

The data in table 1 were collected in two different ways: All incomes, wages, village shocks and village population come from the rounds of 1999 and 2007, respectively, while the governance related variables were collected from during the 2007 survey, with respect to the current *Panchayat* period, and with recall to the previous or previous to previous *Panchayat* period. The descriptive statistics in table 1 are given so that the data pertaining to the survey years are in italics, while the data pertaining to the *Panchayat* years is in normal script.[xiii]

Table 2 gives descriptive statistics of key variables for 15 states.

Table 2 about here.

Autonomy over use of tied resources is measured as an index incorporating 8 separate grants involving employment generation, and seven grants for social programs. For each we know whether the PRI is in charge of allocating the funds, whether it selects the beneficiaries, and whether it is in charge of execution of the programs. We add the scores across these three functions and across all the programs and divide by 24 and 21 respectively for the two categories. We have

data on the autonomy over use of untied funds for all 29 functions that are subject to transfer. In order to make the index more sensitive we focused on 16 of the major functions. The index adds up all the cases in which autonomy is available, and divides it by 16. The index has minimum of 0 and a maximum of 1 across the states, a mean of 0.5 and a median of 0.44

5 Results

Table 3 presents the results. All equations in the system have a statistically significant Chi^2 value, which allows us to decompose the impacts on tax into the wage and productivity effect.

Table 3 about here.

The Hansen-Sargan test that the system is not over-identified is rejected. The equations are well identified since each of the first stage equations contain at least one fiscal characteristics variable that is specific to the transfer that is statistically significant. In the case of g_1, the individual indices worked better than the overall index, while in the case ofg_2, the overall index had better explanatory power, and was retained for the systems estimates.

5.1 The impact of greater devolution on grants and taxes

The proportion of devolved functions increases earmarked grants for social programs and own taxes significantly, but reduces untied grants significantly with no clear effect on employment-generating grants (Table 3). The impact on own taxes is large, suggesting that devolving more functions leads to significant tax revenue increases. An increase in the proportion of devolved functions by 10 percent (approximately by 3 additional functions) increases revenue raised per capita tax revenue by Rs.7.7, nearly half of total taxes raised. The same three additional functions increase g_2 by Rs. 7.1, compared to its mean of Rs 57. This may be because of governments transferring more resources when they

devolve functions, or pressure from Panchayats. Additional devolution of functions also tend to strongly reduce untied grants (g_3), with three additional functions leading to a decrease in untied grants by Rs.19 per capita.

The proportion of tax bases devolved increases block grants very significantly, with smaller, positive effects on other types of grants and tax. This may be because those state governments that devolve more tax bases are also devolving more block grants. While not statistically significant, it appears to provide some additional incentives to raise taxes, suggesting that it may not be lack of tax bases that holds revenue raising back, but unwillingness to tax. The proportion of actually devolved functions that require own revenue collection for their finance reduces g_2 significantly, and again has no clear impact on own revenues. It is not apparent if simply asking local governments to pay more for the functions devolved to them is effective in getting them to do so.

The autonomy indices used show that the impact of autonomy over employment generating grants on such grant receipts is large and positive. There are eight sub-grants in this index, so any marginal increase in grant amounts to an increase of 12.5 percent, and potentially leads to an increase in g_1 of Rs.27.9, presumably because the village may exert greater effort to obtain such grants. An overall increase in autonomy over one of the seven grants contained in the social grants would amount to an increase in the index of about 14 percent and would lead to an increase in these grants of Rs. 14. These grants include health and education expenditures as well as many social programs. It appears that autonomy of using tied funds is especially valued by the rural population. In terms of untied funds, more autonomy over expenditures leads to a reduction in the funds. Such a negative impact would be consistent with states not being willing to provide more such funds when there is a lot of autonomy over their use. Having plans over the use of untied resources have no impact on their

volume.

Political conflicts reduce the proportion of grants that generate employment significantly but have no impact on other fiscal transfers or on taxes.[xiv] It may happen that that it is difficult to administer construction or employment generation programs in villages affected by conflict, or that such grants are withheld in situations of conflicts. Per capita bribes increase g_2 significantly, with each rupee paid in bribes increasing these grants by over Re 0.33 Bribes are often used to access to welfare programs. The positive impact of bribes on these types of grants suggest that when bribed, those receiving the bribes may exert more effort to attract such grants.

The number of GS meetings held in the previous period has a small negative effect on own revenues raised, whereas an increase in the proportion of households affected by village-level shocks sharply reduces the own revenue raised by local governments, possibly due to diminished tax base.

6. Conclusions and Policy Lessons

This paper shows that there are many ways for government to provide more incentives for increasing the very low level of tax collection by Panchayats. Devolving additional functions has a large impact on own revenue raising. It also increases social transfers received by villagers, either from increased provisions from above, or more proactive seeking of such grants from below. The proportion of tax bases devolved does not induce more taxation, suggesting that it is not the lack of tax bases that holds revenue collection back but the lack of will to collect taxes. Also, it appears that states that devolve more tax bases to local governments are also providing them with more block grants. If governments devolve function and require them to be funded locally, Panchayats raise more taxes, and also receive more grants.

Employment generating grants tend to increase wages, with an increase of one Rupee (about 0.6 percent) per capita leading to a wage increase of 10 paisa. Block grants tend to increase wages even more, while social grants, as expected, have no impact. Since the share of wages in profits is very small, the impact of these wage increases on taxes is also very small. *We conclude that wage impacts on taxation exists, but are very small.* We conclude that the productivity impact of grants on taxes is negligible.

This means that incentives effects associated with the specifics of the intergovernmental fiscal system in the states are the main determinant of village taxation. Since different types of grants respond differently to such systems changes, there is much potential to reallocate public expenditures among them in order to induce greater own taxation. First, reallocation among the restricted grants from social grants to employment generating grants increases own taxation. Supplementary analyses showed that shifting a rupee of grant (per capita) to block grants can significantly boost local tax revenues. Such a change is within the powers of the Central government and involves a small shift from Centrally Sponsored Schemes to Block Grants. The revenue base of the PRIs needs to be broadened and deepen as recommended by the Second Administrative Reforms Commission (SARC). Incentives for own revenue collection should be provided by the states by devolving additional functions to local governments, by increasing the amount of untied grants, and by shifting resources from restricted grants to untied block grants. Other incentives could include the matching of own revenues by state resources and co-financing by Panchayats or communities of programs funded from central level. To make these changes possible, the flow of funds for all public development schemes should be routed through the PRIs, and Centrally Sponsored Schemes should shed their separate vertical identity and become a part of the overall development plan of the Panchayat, as also already recommended by the SARC.

Devolving additional functions has a large impact on own revenue raising. It also increases the social transfers received by villagers, either as a consequence of higher provisions from above, or more proactive seeking of such grants from below. The proportion Re of tax bases devolved does not induce more taxation, suggesting that it is not the lack of tax bases that holds revenue collection back but the lack of will or incentives to collect taxes that correspond to already provided tax bases. If governments devolve function and require them to be funded locally, Panchayats raise more taxes, and also receive more social grants.

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Table 1: Descriptive Statistics (in Rupees of 1999)

N is 216 for all variables. All monetary units in rupees (1999)

Variables	**Current *Panchayat***	**Previous *Panchayat***	**Percentage growth**
	Mean	Mean	
Population	3957.11	3391.56	16.68
Per capita income	14588.16	10356.07	40.87
Per capita Agriculture Profit	9651.06	7158.883	34.81
Per capita Non-Agriculture Profit	10402.81	3671.98	183.30
Agriculture Wage*	52.03	49.95	4.16
Non agriculture Wage*	70.97	60.11	18.07
Village wage rate	123	110.06	11.76
No. of village shocks in a village	2.85	2.51	13.55
Per capita transfers for employment generating programs (g_1)	*153.18*	*47.68*	*221.27*
Per capita transfers for social programs (g_2)	*56.14*	*47.68*	*21.15*
Per capita Block grants (g_3)	*125.19*	*90.5*	*38.33*
Per capita Local Tax	*16.19*	*14.94*	*8.37*
Tax rate	*0.053*	*0.073*	*-27.40*
Total revenue from all sources	*164.03*	*107.02*	*53.27*
Amount of per capita bribe	30.46	27.7	*9.96*
No. of Gram Sabha meetings held in a village	5.79	5.11	*13.31*

*These are wages received by villagers, not wages paid by farmers and nonfarm entrepreneurs. The latter grew faster than wages received.

Table 2: Fiscal systems characteristics

Variables	Mean	Min	Max	Median	SD	Skewness
Proportion of devolved functions (out of 29)	0.68	0.28	1	0.66	0.25	-0.18
Proportion of functions requiring own revenues	0.34	0	1	0.13	0.38	0.80
Proportion of tax bases devolved	0.50	0	0.83	0.67	0.27	-0.69
Correspondence index between transferred functions and funding	0.73	0	1	1.00	0.46	-1.06
Autonomy over g1 (Expenditure)	0.592	0	1	0.75	0.38	-0.47
Autonomy over g1 (selection beneficiary)	0.558	0	1	0.63	0.34	-0.29
Autonomy over g1 (Execution)	0.767	0.13	1	0.88	0.28	-1.21
Autonomy in planning and use of g2	0.48	0.05	1	0.43	0.32	0.28
Plans for expenditure of untied resources	0.93	0	1	1	0.26	-3.47
Autonomy over use of untied funds g3	0.50	0	1	0.44	0.36	0.09

N = 15 FOR ALL ROWS.

Table 3: Systems estimates of impacts of transfers from higher levels on own taxation and wages

VARIABLES	(1) G_1	(2) G_2	(3) G_3	(4) Tax	(5) Wage Rate	(6) Profits
Proportion of devolved functions	-188.9	71.47	-189.6**	77.84**		
	(140.3)	(43.97)	(76.61)	(37.53)		
Proportion of tax bases devolved	25.79	1.380	224.6***	11.33		
	(101.9)	(35.62)	(56.12)	(25.94)		
Proportion of devolved functions requiring own revenue	1.402	-95.75***	-67.93	-19.86		
	(63.85)	(33.46)	(49.54)	(19.64)		
Correspondence index	-192.8***	21.97	-93.13**	14.30		
	(68.15)	(26.28)	(40.61)	(19.91)		
Political conflicts	-86.46**	23.64	15.18	-4.858		
	(39.27)	(16.75)	(22.20)	(15.07)		
Per capita bribe	0.229	0.347*	0.219	0.165		
	(0.426)	(0.182)	(0.235)	(0.150)		
Autonomy over g_1 (expenditure)	223.3					
	(138.2)					
Autonomy over g_1 (beneficiary selection)	-194.1					
	(153.4)					
Autonomy over g_1 (execution)	24.95					
	(74.67)					
Autonomy over g_2		101.2**				
		(44.46)				
Plans for expenditure of untied resources			47.58			
			(59.54)			
Autonomy over use of untied funds (g_3)			-134.1***			
			(50.98)			
Number of GS meetings in the village (previous period)				-1.765		
				(2.929)		
Proportion of households affected by village shocks				-52.09***		
				(16.51)		
Predicted per capita grants from employment guarantee programs (g_1)				-0.0603	0.0574	-0.00240**
				(0.0630)	(0.0369)	(0.000977)
Predicted per capita grants from non-employment guarantee				-0.604**	-0.177*	0.00285
				(0.258)	(0.0962)	(0.00247)

programs (g_2)						
Predicted per capita block grants (g_3)				0.237** (0.117)	0.231*** (0.0681)	0.00316* (0.00187)
Predicted per capita tax					-0.0668 (0.165)	0.00938* (0.00479)
Number of village shocks					-1.064 (1.027)	0.0199 (0.0306)
Number of government officers working outside village					0.798 (0.818)	0.0486** (0.0237)
Constant	337.7*** (117.9)	-68.88 (43.69)	241.8** (96.90)	-50.23 (33.64)	-1.867 (6.002)	-0.0631 (0.154)
Observations	193	193	193	193	193	193
Chi^2	23.24***	26.03****	23.02***	19.52*	23.41***	19.25***
Hansen-Sargan overidentification test			77.23***			

Standard errors in parentheses. Significance levels *** p<0.01, ** p<0.05, * p<0.1

Endnotes

[i] NCAER-IDRC Report on "Varieties of Governance and Varieties of Outcomes"(2012)

[ii] This has been shown to be particularly the case where the local governments are headed by women (Nagarajan et al., 2017, ch.10)

[iii] The relevance of this analysis is more general. Similar experiences can be cited from Brazil and Poland.

[iv] One can conjecture that fungible monies could be used along narrow parochial lines and could lead to corrupt practices. What we propose is that both local revenues and fungible resources must exist together for optimal impact on the provision of public goods and services.

[v] Akin et al. (2005), Kappeler et al. (2013) and Kappeler and Valila (2008).

[vi] On average across many Community-Driven Development Programs across the world, in which the implementation of projects, the money, and its use is controlled by the communities, rather than sector staff, leads to a cost reduction of approximately 40 percent.

[vii]These include the National Commission to Review the Working of the Constitution (headed by Justice Venkatachaliah) in 2002, which suggested creating a separate fiscal domain for Panchayats and municipalities; the Second Administrative Reforms Committee (ARC, headed by Veerappa Moily) in 2006 that recommended broadening and deepening the revenue base of local governments, and routing all local funds through Panchayats; the Punchhi Committee on Centre-State relations advocated empowering the GS for all village revenues, and timely devolution of funds and functionaries after devolution of functions.

[viii] Central and State Finance Commissions have recommended augmentation of the financial resources of Panchayats through unconditional transfers, local tax raising for improving service provision, and improving the functioning of State Finance Commissions.

[ix]The index has shown uneven devolution across states, with devolution of functions without the accompanying devolution of either finances or functionaries, resulting in a poor evaluation of the Panchayats.

[x] We have not modeled each of these components of the utility function separately in order to keep the analysis tractable. .

[xi]We could also estimate this equation using total village profits or its component agricultural and non-agricultural profits.
[xii]Much public expenditure in these villages goes for roads, irrigation and land improvements, which would likely to lead to labor saving productivity impacts. Therefore the three coefficients in equation (14) are expected to be positive.
[xiii]These data were collected for each year of the respective Panchayat periods, which is not the same across villages and Panchayat periods, so they were converted to annual averages. There is no precise matching between the years 1999 and 2007 and the middle year of the respective Panchayat period, so there is some error in the matching of years.
[xiv] This is similar to the non-significant effects found by others in African local governments affected by conflict (Mogues and Benin, 2012; Sanogo and Brun, 2018)